

WHAT IS CLAIMED IS:

1. A mobile network relay device, comprising:

a first wireless interface operable to communicate with a wireless device over an intra-vehicular wireless network;

5 a second wireless interface operable to communicate with an extravehicular wireless network; and

a vehicular mountable relay that communicatively couples the first wireless interface and the second wireless interface and that routes communications between the wireless device and the extravehicular wireless network.

2. The mobile network relay device of Claim 1, wherein:

the intra-vehicular wireless network is short-range digital radio network; and

15 the extravehicular network is a cellular network.

3. The mobile network relay device of Claim 2, wherein the short-range digital radio network is a Bluetooth® network.

20 4. The mobile network relay device of Claim 1, wherein:

a coverage area of the intra-vehicular wireless network overlaps with a coverage area of a premises based wireless network; and

the vehicular mountable relay controls and services handoff of the wireless device between the premises based wireless network and the extravehicular wireless network.

5. The mobile network relay device of Claim 4, wherein during handoff parallel communication paths exist to service the wireless device, and wherein the parallel communication paths comprise:

5 a first communication path exists between the wireless device and the premises based wireless network; and

10 a second communication path exists between the wireless device and the extravehicular wireless network via the first wireless interface, the vehicular mountable relay, and the second wireless interface.

6. The mobile network relay device of Claim 4, wherein the wireless device is a telephone hand set.

15 7. The mobile network relay device of Claim 4, wherein the wireless device is a Personal Data Assistant.

20 8. The mobile network relay device of Claim 4, wherein the vehicular mountable relay services handoff from a first premises based wireless network to a cellular network to a second premises based wireless network.

25 9. The mobile network relay device of claim 8, wherein the first premises based wireless network and the second premises based wireless networks have non-contiguous service coverage areas.

30 10. The mobile network relay device of claim 1, wherein the extravehicular wireless network is a satellite based wireless communication network.

11. The mobile network relay device of claim 6, wherein the vehicular mountable relay determines capabilities of the telephone hand set.

5 12. The mobile network relay device of claim 11, wherein the vehicular mountable relay makes handoff decisions based upon the capabilities of the telephone hand set.

10 13. The mobile network relay device of claim 12, wherein the telephone hand set has Bluetooth®, 802.11, and/or cellular interfaces.

14. The mobile network relay device of claim 13, wherein:  
a cellular connection though the telephone hand set's  
15 cellular interface has a first quality of signal;  
a communication pathway through the extravehicular network  
wireless has a second quality of signal; and  
a processor directs that communications of the wireless  
device be serviced by the cellular connection or extravehicular  
20 wireless network based on a comparison of the first quality of  
signal and the second quality of signal.

15. The mobile network relay device of claim 13, wherein a  
processor directs that communications of the wireless device be  
25 serviced by the Bluetooth®, 802.11, or cellular interfaces based  
on power consumption associated with the Bluetooth®, 802.11, and  
cellular interfaces.

16. The mobile network relay device of claim 5, wherein the vehicular mountable relay monitors a signal strength of the premises based wireless network and initiates handoff to the extravehicular wireless network when the signal strength compares unfavorably to a handoff threshold.

17. The mobile network relay device of claim 1, wherein the wireless device is registered with the first wireless interface.

18. A mobile network relay device mounted within a vehicle, comprising:

a first wireless interface operable to communicate with a wireless device over an intra-vehicular wireless network, wherein the intra-vehicular wireless network is a short-range digital radio network;

a second wireless interface operable to establish an communication pathway with an extravehicular wireless network, wherein the extravehicular wireless network is a cellular network or a satellite based network; and

a vehicular mountable relay that communicatively couples the first wireless interface and the second wireless interface and that routes communications between the wireless device and the extravehicular wireless network.

19. The mobile network relay device of Claim 18, wherein the short-range digital radio network is a Bluetooth® network.

20. The mobile network relay device of Claim 18, wherein:  
a coverage area of the intra-vehicular wireless network overlaps with a coverage area of a premises based wireless network; and

5 the vehicular mountable relay controls and services handoff of the wireless device between the premises based wireless network and the extravehicular wireless network.

10 21. The mobile network relay device of Claim 20, wherein during handoff parallel communication paths exist to service the wireless device, and wherein the parallel communication paths comprise:

a first communication path exists between the wireless device and the premises based wireless network; and

15 a second communication path exists between the wireless device and the extravehicular wireless network via the first wireless interface, the vehicular mountable relay, and the second wireless interface.

20 22. The mobile network relay device of Claim 20, wherein the wireless device is a telephone hand set.

25 23. The mobile network relay device of Claim 20, wherein the wireless device is a Personal Data Assistant.

24. The mobile network relay device of Claim 20, wherein the vehicular mountable relay services handoff from a first premises based wireless network to a cellular network to a second premises based wireless network.

25. The mobile network relay device of claim 24, wherein the first premises based wireless network and the second premises based wireless networks have non-contiguous service coverage areas.

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26. The mobile network relay device of claim 18, wherein the vehicular mountable relay determines capabilities of the telephone hand set.

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27. The mobile network relay device of claim 26, wherein the vehicular mountable relay makes handoff decisions based upon the capabilities of the telephone hand set.

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28. The mobile network relay device of claim 27, wherein the telephone hand set has Bluetooth®, 802.11, and/or cellular interfaces.

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29. The mobile network relay device of claim 28, wherein:  
a cellular connection through the telephone hand set's  
cellular interface has a first quality of signal;  
a communication pathway through the extravehicular network  
wireless has a second quality of signal; and  
a processor directs that communications of the wireless device  
be serviced by the cellular connection or extravehicular  
wireless network based on a comparison of the first quality of  
signal and the second quality of signal.

30. The mobile network relay device of claim 28, wherein a processor directs that communications of the wireless device be serviced by the Bluetooth®, 802.11, or cellular interfaces based on power consumption associated with the Bluetooth®, 802.11, and cellular interfaces.

31. The mobile network relay device of claim 21, wherein the vehicular mountable relay monitors a signal strength of the premises based wireless network and initiates handoff to the extravehicular wireless network when the signal strength compares unfavorably to a handoff threshold.

32. The mobile network relay device of claim 18, wherein the wireless device is registered with the first wireless interface.

33. A method to service communications with a mobile wireless devices, comprising:

establishing a communication pathway between the mobile wireless device and a premises based wireless network, wherein the communication pathway allows the mobile wireless device to communicate with resources available through the premises based wireless network;

moving the mobile wireless device to an area wherein coverage of the premises based wireless network overlaps an intra-vehicular wireless network;

establishing a parallel communication pathways that comprise:

a first communication path between the mobile wireless device and the premises based wireless network;  
and

a second communication path between the mobile wireless device and an extravehicular wireless network via a vehicular wireless interface, a vehicular mountable relay, and an extra-vehicular wireless interface; and

handing the wireless device from the premises based wireless network to the intra-vehicular wireless network, wherein the parallel communication pathways allows continuous communications between the mobile wireless device and the resources.

34. The method of Claim 33, wherein the premises based wireless network and the vehicular wireless network are short-range digital radio networks and wherein the parallel communication pathway is a cellular network.



35. The method of Claim 33, wherein establishing a parallel communication pathway further comprises:

communicating with the mobile wireless device via a vehicular wireless interface operable to communicate with the mobile wireless device over the vehicular wireless network; and relaying communications between the mobile wireless device and the resources from the vehicular wireless interface, through a mobile network relay, and to an extravehicular wireless interface operable to establish a communication pathway with an external network.

36. The method of Claim 35, wherein the mobile wireless device is a telephone hand set.

37. The method of Claim 35, wherein the mobile wireless device is a Personal Data Assistant or computing device.

38. The method of claim 35, further comprising servicing handoff from a first premises based wireless network to a cellular network to a second premises based wireless network.

39. The method of claim 38, wherein the first premises based wireless network and the second premises based wireless networks have non-contiguous service coverage areas.

40. The method of claim 33, wherein the extravehicular wireless network is a satellite based wireless communication network.

41. The method of claim 33, further comprising determining capabilities of the mobile wireless device.

42. The method of claim 41, further comprising making handoff decisions based upon the mobile wireless device.

5 43. The method of claim 42, wherein the mobile wireless device has Bluetooth®, 802.11, and/or cellular interfaces.

10 44. The method of claim 43, further comprising directing that the mobile wireless device be serviced according to a comparison of a cellular connection though the mobile wireless device's cellular interface's quality of signal and the quality of signal of a communication pathway through the extravehicular wireless network.

15 45. The method of claim 43, further comprising directing that the mobile wireless device be serviced by the Bluetooth®, 802.11, or cellular interfaces based on power consumption associated with the Bluetooth®, 802.11, and cellular interfaces.

20 46. The method of claim 43, further comprising initiating handoff to the extravehicular wireless network when the signal strength compares unfavorably to a handoff threshold.

25 47. The method of claim 33, further comprising registering the mobile wireless device with the vehicular wireless network.